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## STUDIES OF PERUVIAN BIRDS. NO. XXIX[1]

### THE GENERA *MYIARCHUS, MITREPHANES,* AND *CNEMOTRICCUS*

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I am greatly indebted to Dr. Herbert Friedmann of the U. S. National Museum, Washington, D. C., for the loan of certain critical material used in the following study.

Names of colors are capitalized when direct comparison has been made with Ridgway's 'Color Standards and Color Nomenclature.'

**Myiarchus tyrannulus tyrannulus** (Müller)

*Muscicapa Tyrannulus* P. L. S. MÜLLER, 1776, 'Natursyst.,' Suppl., p. 169—based on DAUBENTON, 'Pl. Enl.' 571, fig. 1; Cayenne.

*Muscicapa aurora* BODDAERT, 1783, 'Tabl. Pl. Enl.,' p. 34—based on DAUBENTON, *loc. cit.;* Cayenne.

*Myiarchus erythrocercus* SCLATER AND SALVIN, 1868, P. Z. S. London, pp. 628, 631—Caracas, Venezuela.

*Myiarchus tyrannulus chlorepiscius* BERLEPSCH AND LEVERKÜHN, 1890, Ornis, VI, p. 16—Cuyabá, Matto Grosso, Brazil; cotypes in Kiel Mus.

Santa Ana, Urubamba Valley, 1 ♂; Jaen, 1 ♂; Pucará, 1 ♂.

Peruvian specimens are quite inseparable from Paraguayan, Argentine, Bolivian, and some Matto Grosso specimens and belong to the same form as these southern examples, whatever the latter may be called. Presumably, the name "*chlorepiscius*" is applicable to this population if it can be distinguished from its conspecies. In the original description of "*chlorepiscius,*" comparison was made with "*tyrannulus*" of Venezuela and Bahia, a grouping which includes the forms *tyrannulus* (as at present restricted) and *bahiae.* Interestingly enough, the Matto Grosso birds in series show the characters of both these forms, in one degree or another. In particular, the Chapada specimens, representing the Madeira-Amazonian drainage, are equivocal while skins from the Rio Paraguay Valley, which includes the type locality of "*chlorepiscius,*" are more consistently like *tyrannulus.* If the name "*chlorepiscius*"

[1] Previous papers in this series comprise American Museum Novitates, Nos. 500, 509, 523, 524, 538, 545, 558, 584, 646, 647, 668, 703, 728, 753, 756, 757, 785, 819, 860, 861, 862, 889, 893, 894, 917, 930, 962, and 963.

can be used, therefore, it may reasonably be applied to the birds with a relatively broad strip of rufous on the inner margins of the outermost rectrices, as in *tyrannulus*.

I am unable, however, to find any definite characters for the distinction of "*chlorepiscius*" from *tyrannulus*. Series from the northern part of South America show the same variation between the same extremes as do examples from the south. The case is comparable to that of *Myiarchus ferox australis*, discussed on another page. As in the case of *australis*, there is a decided difference in the season of molt in the two populations. The southern birds molt from January to March, rarely as late as June; the northern birds, from June to October or November. The northern population inhabits the low Tropical Zone; the southern one, a dilute Tropical Zone or moderately warm highland area, partly south of the Tropic of Capricorn. Neither population appears to be migratory.

Hellmayr refers two specimens from the Rio Branco, Brazil, to *tyrannulus*. I have three specimens from the Rio Surumú and three from the Rio Cotinga, both tributaries of the Rio Branco, and find all six examples like others from Faro, Monte Alegre, and Ilha São Luiz (Maranhão). They agree with *bahiae* in the absence of rufous inner margins of the outer rectrices but approach *tyrannulus* in the somewhat darker coloration of the back and the top of the head. For the present I refer them all to *bahiae*, although they are distinguishable from most of the Bahian specimens. Bahian birds are far from uniform. One or two examples are as dark as the Faro birds; most of them are decidedly paler. Southern Maranhão skins are all relatively pale (like the paler Bahian birds) as are three Ceará examples. Four skins from Goyaz (Rio Araguaya) are the palest of any at hand. Ceará is the type region for "*pallescens*" but the specimens at hand from that state, like the Maranhão and Goyaz examples, lack the development of rufescence on the outer rectrices which is given as one of the characters of the supposed Ceará form.

One female of *tyrannulus* from Cayenne has the rufous of the outermost rectrices reduced to a small area toward the base of the inner webs and other examples from the same locality have the rufescence duller and less sharply defined than in the Venezuelan and Colombian series. There is thus some approach toward *bahiae* even in the type locality of *tyrannulus*.

It may be noted that *bahiae* is found on the lower Tapajoz and it is probable that it ranges up that stream to the Matto Grosso highlands,

since, as stated on an earlier page, some northern Matto Grosso specimens are like *bahiae*, some like *tyrannulus*.

Records of *tyrannulus* from Perú are from Maranura, Bellavista, Yurimaguas, and Sarayacu.

SPECIMENS EXAMINED

*M. t. tyrannulus*.—FRENCH GUIANA: 9. BRITISH GUIANA: 1. VENEZUELA: 64. TRINIDAD: 8. MONOS ISLAND: 1. MARGARITA ISLAND: 2. TESTIGOS ISLANDS: 1. COLOMBIA: 51. BRAZIL: Matto Grosso region, 34. PARAGUAY: 15. ARGENTINA: 13. BOLIVIA: 8. PERÚ: 3.

*M. t. bahiae*.—BRAZIL: state of Bahia, 16; São Paulo, 6; Piauhy, 7; Maranhão, 13; Goyaz, 4; Ceará, 3; Rio Xingú, 1; Rio Majarý, 1; Rio Tapajoz, 9; Rio Jamundá, 2; Monte Alegre, 1; Rio Surumú, 3; Rio Cotinga, 3.

**Myiarchus swainsoni pelzelni** Berlepsch

*Myiarchus pelzelni* BERLEPSCH, 1883 (April), Ibis, p. 139—Bahia; Frankfort Mus.

I can find no sharp line of demarcation between *pelzelni* and *swainsoni* sufficient to justify the maintenance of specific separation. Aside from the darker color of *swainsoni*, there is one factor which is of particular service in the separation of individual specimens. This is the relative prominence of the pale tips on the greater and middle upper wing-coverts and of the pale outer margins on the inner secondaries and tertials. In *pelzelni* these markings are whitish or yellowish white, broad and conspicuous; in *swainsoni*, the tips of the two series of wing-coverts are much duller, grayish or brownish in tone, though paler than the median portion of the feathers, and the outer margins of the secondaries and tertials are very narrow, though whitish or yellowish white. Typical *pelzelni* has the throat and chest snowy white, instead of grayish, and the belly clearer yellow than in *swainsoni*, which has a grayish suffusion, particularly on the latero-anterior portion of this region. *Swainsoni* also has the upper parts distinctly darker, particularly on the top of the head, and usually has the lores brownish, not in contrast to the adjacent areas of the head.

Intergradation between the two forms appears to take place in Paraguay. Specimens from east of Caaguassú and east of Villa Rica are rather typical *swainsoni*, but a skin from Colonia Risso and another without definite locality, are a little paler on the upper parts than the average and have more prominent pale wing-bars. None of the Paraguayan specimens are near the maximum of *swainsoni* in dimensions although they come within the range of variations of both *swainsoni* and *pelzelni*. Intergradation between *swainsoni* and the still larger

*ferocior* may be presumed to occur in Uruguay where *ferocior* is reported to exist in the western part of the country and *swainsoni* in the east.

All of the dated specimens of *swainsoni* at hand from southeastern Brazil and Paraguay were collected between September and early April. All from the northern border of Brazil, British Guiana, and Venezuela were obtained during the period from April to September. Apparently, therefore, *swainsoni* is a migrant from its southern range (Rio de Janeiro south to Rio Grande do Sul and eastern Uruguay and west to Paraguay) during the winter months. The northern specimens are quite indistinguishable from the southern ones except that the northern examples are almost all in some stage of molt, beginning, apparently, in April and ending just before the southern journey in September.

It is difficult to find characters for the constant recognition of *ferocior*. In size, it is larger than *swainsoni* and *pelzelni*, but there appears to be some overlap. The upper parts are much as in *pelzelni*, but the under parts are duller, with the throat and chest less purely whitish and the belly less clearly yellow, though more yellowish than in *swainsoni*. The wing-markings are even more pronounced than in *pelzelni*. The lores, which are brownish in *swainsoni* and pale grayish or whitish in *pelzelni*, are darker than in either of the others and appear to have a dusky tone either just in front of the orbit or extended over the entire loral area. The bill is pale, as in *pelzelni*, but inclined to be a little larger.

This form finds its center of distribution in northern Argentina, extending northward into southeastern Bolivia and southeastward into western Uruguay, according to authors. One skin from the Province of Sara, Bolivia (March), may be a resident individual. Two specimens from Todos Santos, Bolivia, were taken in July and there is a possibility that they represent no more than migrants from more southern regions. Additional material from Bolivia will be needed to determine the status of the species in that country. A single bird from Trinidad, Río Mamoré, is *pelzelni*, perhaps the resident form in the north.

A specimen from Florencia, eastern Colombia, which was referred to *pelzelni* by Todd and Hellmayr, but to "*fortirostris*" (= *ferocior*) by Chapman, agrees much better with *ferocior* than with the Bahian form, having the chest dark and grayish, instead of white, the belly relatively pale and dull, the lores somewhat shaded with dusky, and the wing-markings very prominent. This specimen was collected in June and rather certainly represents a migrant from the south. Another Colom-

bian bird, from La Herrera, south of Bogotá, collected in May, is decidedly closer to typical *swainsoni* of which it appears to be a wintering individual.

Barrows (1883, Bull. Nutt. Orn. Club, VIII, p. 202) suspected the migratory tendencies of *ferocior* which he found to appear in western Uruguay on November 20. All our specimens of this form from Argentina are dated in November, December, and middle March.

A single example from Chauillay, Urubamba Valley, Perú, dated July 10 but without given sex, is slightly darker than typical *pelzelni*, not so clear white on the chest as that form but more whitish than in *ferocior* and about as clear yellow on the belly as *pelzelni*. The resemblance is greatest to a series of birds from the Matto Grosso region of Brazil which, in general, is most nearly like true *pelzelni*. Other Peruvian records, from Santa Ana, Urubamba Valley, are dated June 16, July 12, and December 19. If these records all belong to the same form, it should be the form resident in the region. Judging by the Urubamba Valley skin now at hand, this form is *pelzelni*. Nevertheless, there is one Peruvian specimen which is referable to *ferocior*, apparently a migrant from farther south. It is discussed under the heading of *ferocior*.

A single specimen, without sex, from Tapará, Rio Xingú, is quite typical *pelzelni*, and a badly worn skin from the island of Mexiana also appears to belong to this form. The range of *pelzelni* thus may well extend northward from Bahia to the Xingú as well as westward across Matto Grosso and northern Bolivia to eastern Perú. Specimens from the Tapajoz and the Madeira, on the south bank of the Amazon, and from Faro and the lower Rio Negro, north of the Amazon, are not to be so assigned, nor are they referable to *ferocior* or *swainsoni*. Since they have no available name, they are described below.

**Myiarchus swainsoni ferocior** Cabanis

*Myiarchus ferocior* Cabanis, 1883, Jour. für Orn., XXXI, p. 214—San Javier, Tucumán, Argentina; Berlin Mus.

*Myiarchus* (?) *fortirostris* Todd, 1913 (August 8), Proc. Biol. Soc. Wash., XXVI, p. 171—Prov. del Sara, Bolivia; ♂; Carnegie Mus.

A single specimen from "E. Peru" in the U. S. National Museum, Washington, D. C., without date or exact locality, agrees with Argentine and east-Bolivian specimens in dull ventral coloration, dark lores, and very broad pale tips on the upper wing-coverts. It is quite readily distinguishable from the Urubamba Valley bird that I have referred to *pelzelni* and compares well with the skin from Florencia, Colombia,

that has been placed with *ferocior*. Presumably, like the Florencia specimen, this example represents a migrant from farther south. A more detailed discussion of *ferocior* is given under *pelzelni*.

It is possible that some of the other records from Perú (Santa Ana, Urubamba Valley) also may belong to *ferocior* but the matter can not be determined without an examination of the pertinent specimens. Two of the Santa Ana birds have been determined by Hellmayr as *pelzelni*. There are no other Peruvian records.

**Myiarchus swainsoni amazonus,** new subspecies

TYPE from Faro, Brazil. No. 284,359, American Museum of Natural History. Adult male collected November 29, 1930, by the Olalla brothers.

DIAGNOSIS.—Nearest to *M. s. pelzelni* of Bahia but darker; upper parts as dark as in the paler examples of *M. s. swainsoni* and with similar contrast between the back and the still darker and browner cap; under parts intermediate, with the throat and chest less whitish than in *pelzelni* but not so strongly grayish as in *swainsoni;* belly slightly shaded with grayish, less strongly than in *swainsoni;* wing-marking strongly developed as in *pelzelni;* lores paler than in *swainsoni* or *ferocior;* size that of *pelzelni*.

RANGE.—Both banks of the lower Amazon, from the Madeira to the Tapajoz and from the lower Rio Negro to the Jamundá; extending northward to French Guiana and the lowlands of British Guiana.

DESCRIPTION OF TYPE.—Back Deep Olive, including the shorter upper tail-coverts; longer upper tail-coverts distinctly browner with somewhat rufescent margins; whole top of head Brownish Olive × Olive Brown with darker centers; auriculars slightly darker over most of the area but tinged with grayish along the lower border; lores dull olive-grayish; malar region and sides of throat near Gull Gray; sides of breast darker and tinged with brownish; center of throat and chest paler, near Pallid Neutral Gray; belly Marguerite Yellow × Primrose Yellow, with a noticeable grayish suffusion latero-anteriorly; flanks tinged with dull olive-grayish; under tail-coverts like the middle of the belly. Wings dark brown with narrow, pale outer margins on the primaries, broader and clearer ones on the secondaries, and still broader and more prominent ones on the tertials; median and greater upper wing-coverts with relatively broad and conspicuous pale tips, extending basad along narrow outer margins on the greater series; lesser series like the back, with slightly paler tips on the lower row of feathers; under wing-coverts Marguerite Yellow; inner margins of remiges Olive-Buff. Tail Fuscous, very narrowly edged with grayish or grayish brown on basal part of outer margins, but with whole outer web of outermost pair somewhat paler than the inner web and with a still paler, narrow outer margin; tips of all rectrices paler and more grayish than the middle and basal portions, not at all sharply defined. Bill (in dried skin) light brown; feet darker brown. Wing, 88 mm.; tail, 82; exposed culmen, 16.25; culmen from base, 22; tarsus, 20.

REMARKS.—Female similar to the male but averaging a little smaller (wing, 84–88.5; tail, 73–78; males with wing, 87–90; tail, 76.5–82).

Two specimens from Annai, British Guiana, are inseparable from the Amazonian birds, although one of them is darker on the upper parts than most and shows an approach toward some of the series of *phaeonotus;* below, it is too pale on the chest and too yellowish on the belly for that form. Nevertheless, its characters are significant and suggestive of its relationship to *phaeonotus.*

Sixteen specimens of *phaeonotus* from the type locality, Merumé Mountains, British Guiana (one), Mt. Roraima, (five), and Mt. Duida (ten), are fairly uniform in their characters of sooty upper parts, clear gray throat and chest, only slightly yellowish belly, and strongly-marked wings. Nevertheless, there is some variation in the direction of *amazonus,* particularly noticeable in a topotype. There seems to be no good reason to keep *phaeonotus* specifically distinct from *swainsoni* and *pelzelni.* The wing-formula in *phaeonotus* is not perfectly constant, nor is it in the other related forms. The most common pattern in *phaeonotus* is that shown less often in *pelzelni, swainsoni,* and *ferocior* but quite commonly in *amazonus,* while the most common style in *pelzelni* occurs in some *phaeonotus.* In the characteristic wing of *pelzelni,* the 10th (outermost) primary is longer than the 4th and the 9th is longer than the 6th, but some specimens show the 10th shorter than the 4th or the 9th shorter than the 6th although the 9th appears always to be definitely longer than the 5th. So also in *phaeonotus,* the 9th is longer than the 5th, sometimes longer than the 6th. This appears to be the most constant feature of the wing for the whole *swainsoni* group. In *M. ferox,* the 9th primary is usually distinctly shorter than the 5th, rarely equal to it, and the 10th, except in rare cases, is shorter than the 4th.

A number of specimens from the middle and upper Rio Negro necessitate a reconsideration of *phaeonotus* as a strictly mountain-inhabiting form. An adult in nearly completely fresh plumage (sexed as a male but with the measurements of a female), from Cucuhy, is quite indistinguishable from Roraima and Duida birds. An immature bird from Cucuhy also is certainly *phaeonotus.* Two males from Tabocal and a male and two females from Yavanari, all in very worn condition, match similarly worn specimens from Mt. Duida and are noticeably darker than worn examples of *amazonus* from the lower Negro. Hence they must be placed with *phaeonotus* and the range of *phaeonotus* must be considered to extend about halfway down the Negro; that of *amazonus* does not extend far upstream from the mouth.

The skins at hand from Igarapé Cacao Pereira, on the right bank of

the Rio Negro, a short distance above its mouth, are badly worn but are a little darker above than might be expected from an examination of fresher material. Nevertheless, they are paler than similarly worn examples of *phaeonotus*. The dark Annai bird, mentioned in the preceding paragraph, is not unlike the worn lower Rio Negro skins in general dorsal coloration although it is not so abraded.

A skin from Yucabi, upper Rio Negro (right bank) is much like *amazonus* in ventral coloration, but the upper parts are paler, less brownish and with a light greenish tone, particularly noticeable on the forehead. It lacks much of the dusky spot in front of the eyes that characterizes typical *ferocior* and is small for that form, but it does not fit in well with the series of *amazonus*. As a matter of fact, it resembles most two Paraguayan specimens (one from Colonia Risso and one without exact locality) which are intermediate between *swainsoni* and *pelzelni* and it may be a migrant from northern Paraguay. Paraguayan skins from near Villa Rica and near Caaguassú are rather typical *swainsoni*, as is discussed on an earlier page.

### Specimens Examined

*M. s. swainsoni*.—Brazil: São Paulo, Ypanemá, 1 ♂ (cotype of *cantans* Pelzeln); Rio Grande do Sul, São Francisco de Paula, 3 ♂, 5 ♀; Nonohay, 3 ♂, 6 ♀; Vaccaria, 1 (?); Lagôa de Forno, 2 ♂, 1 ♀; Sananduva, 1 ♂; Lagôa Vermelha, 3 ♂, 3 ♀; Erebango, 2 ♂; Sinimbú, 1 ♂; west of São Lorenzo, 1 ♂; Rio de Janeiro, Monte Serrat, 1 (?); Santa Catharina, Palmitas, 1 (?); Paraná, Corvo, 2 ♂, 1 ♀; Porto Almeida, 1 ♂, 1 (?); Tibagy, 1 ♂; Rio Surumú, Frechal, 1 ♀[1]. Paraguay: east of Villa Rica, 2 ♀; east of Caaguassú, 2 ♀. British Guiana: Annai, 1 ♀[1]. Venezuela: Ciudad Bolívar 1 ♀[1]; Perico, 1 ♂[1]; Agua Salada de Ciudad Bolívar, 1 ♀[1]; Caicara, 2 ♂[1]; Río Cassiquiare, Buena Vista, 1 (?)[1]; Solano, 1 ♀[1]; Río Orinoco, mouth of Río Ocamo, 2 ♀[1]. Colombia: La Herrera, 1 ♀[1].

*M. s. pelzelni*.—Brazil: Bahia, Jiquy, 1 ♂; "Bahia," 3 (?); Matto Grosso, Tapirapoan, 1 ♀; Urucum, 1 ♂; Chapada, 4 ♂, 5 ♀; Rio Xingú, Tapará, 1 (?); Isla Mexiana, Santa Maria, 1 ♀. Perú: Chauillay, 1 (?). Bolivia: Trinidad, Río Mamoré, 1 ♀.

*M. s. ferocior*.—Argentina: Barracas al Sud, 1 ♂, 1 ♀; Ocampo, 1 ♂, 1 ♀; Tucumán, 1 ♂; above San Pablo, 1 ♂; La Plata, 1 ♂. Bolivia: Province of Sara, "Camp woods," 1 ♀; Todos Santos, 1 ♂[1], 1 ♀[1]. Colombia: Florencia, 1 ♂[1]. Perú: "E. Peru," 1 (?)[1,2].

*M. s. swainsoni* × *pelzelni*.—Paraguay: Colonia Risso, 1 (?); (no locality), 1 ♀. Brazil: Rio Negro, Yucabí, 1 ♀[1].

*M. s. amazonus*.—Brazil: Faro, 2 ♂ (incl. type); Rio Negro, Manaos, 2 ♂, 1 ♀; Igarapé Cacao Pereira, 3 ♂, 1 ♀; Rio Tapajoz, Igarapé Brabo, 2 ♀; San-

[1] Migrant.
[2] Specimen in U. S. National Museum, Washington.

tarem, 1 ♂; Rio Madeira, Borba, 1 ♂; Santo Antonio de Guajará, 1 ♀. BRITISH GUIANA: Annai, 2 ♂.

*M. s. phaeonotus.*—BRITISH GUIANA: Merumé Mountains, 1 ♀; Mt. Roraima, 1 ♀. VENEZUELA: Mt. Roraima, Paulo, 2 ♂; Arabupu, 3 ♂, 1 ♀; Mt. Duida, Valle de los Monos, 1 ♀; Caño León, 2 ♂, 1 ♀; "Cumbre No. 1," 1 ♂, 1 ♀; Summit Camp, 1 (?); Chorrera de Vegas, 2 ♂, 1 ♀. BRAZIL: Rio Negro, (near) Cucuhy, 1 "♂" [? = ♀], 1 ♂; Yavanari, 1 ♂, 2 ♀; Tabocal, 2 ♂.

**Myiarchus phaeocephalus phaeocephalus** Sclater

*Myiarchus phaeocephalus* SCLATER, 1860, P. Z. S. London, XXVIII, p. 281—Babahoyo, Ecuador; cotypes in British Mus.

Specimens from Chilaco and Paletillas, Perú, are inseparable from west-Ecuadorian birds and are typical *phaeocephalus*. Records from Lechugal and Tumbez presumably represent the same form.

These localities, as well as those in western Ecuador, are all in the Arid Tropical Zone of the western side of the Western Andes, from sea-level up to about 1550 feet (Paletillas). Farther south, on the same side of the Andes but at a much higher elevation, either in the Subtropical Zone or adjacent to its lower margin (4000–6000 feet), is found the form *toddi*, discussed below. Across the Western Andes, on the eastern slope of the range at relatively high elevations (1450–5000 feet), the resident population of this species is recognizably distinct from that of the coastal region and may be known as follows.

**Myiarchus phaeocephalus interior,** new subspecies

TYPE from Perico, Río Chinchipe, Perú; elevation, 1450 feet. No. 182,126, American Museum of Natural History. Adult male collected July 14, 1923, by Harry Watkins; original No. 7449.

DIAGNOSIS.—Similar to *M. p. phaeocephalus* of western Ecuador and extreme northwestern Perú, but averaging smaller; top of head behind forehead with centers of feathers browner and less blackish and the margins browner, less grayish, giving a more uniform appearance to the area; back with a somewhat more brownish tinge and with the dark centers of the feathers paler than in *phaeocephalus* and less extensive, giving a decidedly less prominently streaked appearance; yellow of belly deeper in tone; margins of the secondaries and tertials more yellowish, less whitish.

RANGE.—Semi-arid Tropical Zone region on the eastern slopes of the Western Andes above the middle Marañón in northern Perú.

DESCRIPTION OF TYPE.—Most of top of head with centers of feathers brownish black, margined with Dark Olive; passing into dull Neutral Gray on forehead and darker gray on hind neck; back near Deep Olive with dull brownish central areas on the feathers, concealed and not very sharply defined from the tips even when the feathers are lifted; lores, sides of head, and superciliary region near Neutral Gray; chin and center of throat Pale Gull Gray, passing into Pale Neutral Gray on the chest and Dark Olive Gray on the sides of the breast; belly and under tail-coverts

Barium Yellow with a slight tinge of Straw Yellow; flanks suffused with light grayish olive. Wings blackish brown; primaries with very fine, pale outer marginal lines; secondaries with outer borders broader, Olive-Buff; tertials with borders still broader; greater and median upper wing-coverts broadly tipped with Light Grayish Olive, forming prominent wing-bars; lesser series colored like the back; under wing-coverts Primrose Yellow; inner margins of secondaries and tertials near Primrose Yellow; inner margins of primaries less yellowish. Tail brownish black or Fuscous with broad area at tips paler by comparison with the middle portions of the feathers but without any line of demarcation; outer web of outermost rectrix slightly paler than the inner web; outer margins of remaining rectrices colored like the back. Bill, in dried skin, blackish, somewhat browner on the mandible; feet blackish. Wing, 91 mm.; tail, 89; exposed culmen, 17.25; culmen from base, 23; tarsus, 20.

REMARKS.—Female similar in color but averaging somewhat smaller. Wing, 85–88 mm.; tail, 82.5–85. Males: wing, 89–93; tail, 87–89 (one specimen 96.5!). Typical *phaeocephalus* at hand measure as follows. Males: wing, 90.5–96 mm.; tail, 85–93. Females: wing, 85.25–91; tail, 82.25–93.

Chapman (1926, Bull. Amer. Mus. Nat. Hist., LV, p. 528) noted the differences between Marañón Valley birds and typical specimens from the western coast but did not give a name to the birds of the interior. With additional specimens from still other localities than those mentioned by Chapman, I find the characters quite definitive and the range distinctive, as shown above.

**Myiarchus phaeocephalus toddi** Chapman

*Myiarchus toddi* CHAPMAN, 1923 (April 11), Amer. Mus. Novitates No. 67, p. 10—Palambla, Perú; ♂; Amer. Mus. Nat. Hist.

The type of this interesting form remains unique so far as published records show. It is quite distinct from both *phaeocephalus* and *interior* although it is closer to *phaeocephalus*, being even grayer above than that form though with the same prominence of blackish centers on the dorsal feathers.

Hellmayr [1927, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII (5), p. 175] has suggested the possibility that *toddi* is an individual variant of *phaeocephalus*, devoid of lipochrom tints. So long as it remains known only from a unique specimen this possibility cannot be summarily dismissed. Nevertheless, there is an equal possibility that a perfectly valid subspecies exists at Palambla. Dr. Chapman concluded that the habitat of *toddi* is in the Subtropical Zone, but this conclusion also needs confirmation. The country about Palambla is described by Harry Watkins (the collector of the type of *toddi*) as above the true Arid Tropical Zone and below the Humid Temperate Zone, with some

admixture of Subtropical (humid) terrain in the ravines although not, in general of a humid character. Obviously, some mingling of faunal elements occurs at this point as it does elsewhere under similar conditions and it is difficult to specify the exact zonal classification which should be used. The country occupied by *interior* has many of the same characteristics, being a high and semi-arid region with some Tropical Zone affinities.

Certain species of birds, with a range coinciding in part with that of *Myiarchus phaeocephalus*, show no subspecific distinctions in the regions embraced by the three forms of *phaeocephalus* here recognized. Others (such as *Xenops rutilans*) may show a distinction between the Marañón Valley and the coast or (like *Hylocryptus erythrocephalus*) between Palambla and the northern part of Piura. I have found no case exactly parallel to that of *M. phaeocephalus* although *Thamnophilus doliatus* is quite similar in some respects, differing principally by the much more extensive distribution of the Marañón form and by the more restricted and slightly more elevated range of the northern Piura form. The present case, therefore, is particularly interesting from a distributional point of view and more information respecting the Palambla resident is highly desirable.

Specimens Examined

*M. p. phaeocephalus*.—Ecuador: Manta, 1 ♂; Chongocito, 4 ♂; Chone, 1 ♂, 2 ♀; Bahia, Manaví, 1 ♂; coast of Manaví, 1 ♂, 1 ♀; Isla Puna, 2 ♂, 1 (?); Daule, 1 (?); Esmeraldas, 1 (?); Santa Rosa, 1 ♂, 2 ♀, 1 (?); "Ecuador," 2 (?). Perú: Chilaco, 1 (?); Paletillas, 1 ♂, 2 ♀.

*M. p. toddi*.—Perú: Palambla, 1 ♂ (type).

*M. p. interior*.—Perú: Huarandosa, 1 ♂, 2 ♀; Perico, 1 ♂ (type), 1 ♀, 2 (?); Charapi, 1 ♂, 1 ♀; Lomo Santo, 2 ♂; Jaen, 1 ♂, 2 ♀; Pucara, 1 ♀; San Ignacio, 1 ♂, 1 ♀.

**Myiarchus ferox ferox** (Gmelin)

*Muscicapa ferox* Gmelin, 1789, 'Syst. Nat.,' I (2), p. 934—based primarily on 'Le Tyran de Cayenne,' Brisson; Cayenne.

Typical *ferox* appears to occupy the entire Amazonian lowland basin from Perú and Ecuador to the mouth of the Amazon, extending well up the Rio Negro and to the three Guianas, and following the eastern coast of Brazil southward to the vicinity of Rio de Janeiro. Throughout this range I can detect no significant differences in a series of nearly two hundred and twenty birds. The general dorsal color is dark in comparison with the other subspecies, with the top of the head a sootier brown. The series includes only one bird from British Guiana which

belongs with *ferox* rather than with adjacent forms to the westward. One specimen from Monte Serrat, Serra do Itatiaya, Brazil, also agrees with *ferox* although a "Rio" trade-skin and two birds from La Raiz are closer to *australis!*

A series of eighteen skins from the middle Orinoco and the Caura region of Venezuela is inseparable from *australis* of southernmost Brazil, Bolivia, Paraguay, Uruguay, and Argentina by any positive taxonomic characters, as has been pointed out by Hellmayr [1926, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII (5), p. 177, footnote b]. The cap is sometimes a little darker than in most of the southern *australis* and the bill, so far as may be determined from dried skins, appears to average darker in color, although the field notes on various specimens do not indicate any such difference. There is a distinction in the dates of molt which might be ascribed entirely to the relative positions of the two regions in relation to the equator. The Argentine and other southern examples of the subspecies molt from January to April and are in worn plumage from October to January; the Orinocan population shows the first signs of molt in August, continuing to November, and is in worn condition from April to July.

One additional specimen, labeled as from La Pricións, Río Caura, E. André collector, is quite different from the other Caura birds and appears to be a specimen of something else with erroneous data. It agrees with *venezuelensis* in many particulars, including the rufous edges of the tail and the sharp white margins of the tertials, but differs by somewhat paler coloration above and below. I have no specimens of *insulicola* from Tobago, one of André's localities, to which this specimen may be referable. The series of *venezuelensis* at hand is too small to allow me to say that the Caura example is not merely a pale example of that subspecies.

Birds from the region of Mt. Duida and the Río Cassiquiare are intermediate between *ferox* and *australis*, being paler than *ferox* and darker than *australis*. In general, they are rather closer to *ferox*. On the other hand, four specimens from Villavicencio, Colombia, on an affluent of the Orinoco, although also intermediate between *ferox* and *australis* are closer to *australis*. Three birds from La Morelia, in southeastern Colombia, on an affluent of the Amazon, are typical *ferox*. North, central, and western Colombian birds are *panamensis*.

I am puzzled by a single specimen of *panamensis* from El Zapotal, western Costa Rica, whence I have also a skin of *actiosus*. *M. f. panamensis* has never been recorded from Costa Rica where even

*actiosus* is thought to be rare. Until further evidence is available, *panamensis* probably should be considered as a straggler north of Panamá. Nevertheless, the situation deserves further investigation.

The single molting season of typical *ferox* varies considerably according to locality. The relative position, north or south of the equator, appears to have little to do with this variation, in spite of the difference, noted on a preceding page, between the Orinocan and Argentine populations of *australis*. Molting specimens of *ferox* in the collection before me are distributed as follows: Perú and Ecuador—November and December; upper Amazon—January, February, and April; south bank of the lower Amazon—March to August; east coast of Brazil (Bahia, etc.)—April and May; Faro—November to January; Rio Negro—December to February; the Guianas—December to March; Mt. Duida region—October. The birds of the south bank of the lower Amazon stand rather exactly between the northern and southern populations of *australis*, but the Rio Negro series is in closer agreement with birds from Faro, Guiana, the upper Amazon, Perú, and Ecuador.

Records of *ferox* from Perú are from Pebas, Yurimaguas, Chamicuros, Rioja, Jeberos, Santa Cruz, "Upper Ucayali" [= near Cashiboya], "Eastern Perú," Río San Miguel, San Ramon, and Chaquimayo.

The four species, *M. ferox*, *M. cephalotes*, *M. phaeocephalus*, and *M. apicalis* are very closely allied and replace each other geographically and, in part, zonally. *M. ferox* is the inhabitant of the Tropical Zone east of the Andes, extending southward into the northern part of the South Temperate Zone in Argentina and adjacent areas, and reaching Trinidad, northwestern Venezuela, and the Santa Marta region of Colombia, extending up the more humid portions of the Río Magdalena, and occupying the humid western coast of Colombia whence it extends into Panamá; the Costa Rican form inhabits a more arid terrain. *M. phaeocephalus* is the representative species of the arid coastal region of Perú and Ecuador, ascending the mountains of northwestern Perú to the semi-arid zone intermediate between the Arid Tropical and the Subtropical zones. In arid portions of the Cauca and Magdalena valleys in Colombia, *M. apicalis* is found. The Subtropical Zone from Venezuela to Bolivia presents a chain of subspecies of *M. cephalotes*.

Nowhere in this entire area do any two of these species occur at the same localities, so far as the material at hand shows (Chapman's record of *cephalotes* from Zamora, Ecuador, is based on a specimen of *ferox*). Some of the localities are very close together, but always there is an ecological or zonal difference in evidence. The specific distinctions tend

to break down to a limited extent as is shown by the sharper tertial margins in *M. f. venezuelensis* (suggesting *cephalotes*), the reduction of whitish on the outer web of the outer rectrices in *M. c. cephalotes* (suggesting *ferox*), the increase of whitish at the tips of the rectrices in *M. c. caribbaeus* (suggesting *apicalis*), and similar minor characters. Nevertheless, each group is rather well defined and in possession of distinctive zonal or ecological niches and specific recognition may be accorded to each of the four groups so long as their probable phylogenetic relationship is not obliterated.

### Specimens Examined

*M. f. ferox.*—French Guiana: Roche Marie, 1 ♂, 1 ♀; Approuague, 4 ♂, 1 ♀; Mana, 1 ♂; Cayenne, 3 ♂, 1 ♀. Dutch Guiana: near Paramaribo, 3 ♂, 2 ♀. British Guiana: Rockstone, 1 ♀. Brazil: Faro, 6 ♂, 8 ♀, 1 (?); Rio Negro, Mt. Curycuryari, 1 ♂; Tauapessasu, 1 ♂, 1 ♀; Santa Maria, 1 ♂; Yucabi, 2 ♀; Santa Isabel, 1 ♂, 1 ♀; Yavanari, 1 ♂, 1 ♀; Igarapé Cacao Pereira, 11 ♂, 9 ♀; Muirapinima, 13 ♂, 3 ♀; Campos Salles, Manaos, 1 ♂; Hacienda Rio Negro, Manaos, 2 ♂; Rio Branco, Caracarahy, 1 ♂; Pará, Flor de Prado, 1 ♀; Rio Tocantins, Baião, 2 ♂, 1 ♀; Mocajuba, 1 ♀; Rio Xingú, Tapará, 4 ♂, 1 ♀; Villarinho de Monte, 1 ♂; Porto de Moz, 1 ♀; Rio Tapajoz, Aramanay, 3 ♂, 3 ♀; Igarapé Brabo, 1 ♂, 2 ♀; Villa Bella Imperatríz, Santa Clara, 4 ♂, 3 ♀; Lago Andirá, 1 ♂, 3 ♀; Boca Rio Andirá, 1 ♀, (1 ?); Rio Madeira, Borba, 3 ♂, 8 ♀; Igarapé Auará, 2 ♂, 3 ♀; Santo Antonio de Guajará, 2 ♂, 3 ♀; Rosarinho, 6 ♂, 3 ♀; Lago Miguel, 2 ♂, 3 ♀; Lago Sampaio, 5 ♂, 4 ♀, 1 (?); Calamá, 1 ♀; Teffé, Boca Lago, 1 ♂, 3 ♀; San Isidro, 1 ♂; Maranhão; Isla São Luiz, Estiva, 1 (?); Isla São Luiz, São José, 1 ♂, 1 ♀; Tabocas, 1 [♀ ?]; Espirito Santo, Santa Barbara de Caparao, 3 ♂; Lagôa Juparaná, 1 ♀, 1 (?); Pernambuco, Brejao, 1 (?); Palmares, 1 ♀; Bahia, Jequié, 1 ♀; Santa Rita, 1 ♂; Barra, 1 ♂; Orobó, 1 (?); Cajazeiras, 1 ♀; Bahia, 2 ♂, 1 ♀, 2 (?); Rio de Janeiro, Serra do Itatiaya, Monte Serrat, 1 ♂. Perú: Puerto Indiana, 1 ♀; Río Seco, west of Moyobamba, 1 ♂, 1 ♀; Rio Negro, 1 ♂; Tocache, 1 (?); Sarayacu, 3 ♂; Santa Rosa, Río Ucayali, 4 ♀; Candamo, 1 ♂; mouth of Río Urubamba, 1 ♂. Ecuador: Zamora, 1 ♀; mouth of Río Curaray, 4 ♂, 3 ♀. Colombia: La Morelia, 2 ♂, 1 ♀.

*M. f. ferox* (× *australis*).—Venezuela: Río Cunucunumá, Boca de Sina, 2 ♀; Mt. Duida, Esmeralda, 2 ♂, 2 ♀; Río Orinoco, La Laja, 3 ♂, 3 ♀; mouth of Río Ocamo, 3 ♂; opposite mouth of Ocamo, 1 ♀; Río Cassiquiare, El Merey, 1 ♂, 2 ♀, 1 (?).

*M. f. australis.*—Brazil: Minas Geraës, east of Bôa Espera, 1 (?); Rio Caparao, 1 ♀, 2 (?); Paraná, Porto Britannia, 1 ♂; Guayra, 1 (?); Piauhy, Patos, Gilbues, 1 ♂, 1 (?); Therezina, 1 ♂; São Paulo, Fazenda Cayoá, 1 ♂, 1 ♀; São Sebastião, 1 ♀; Itapura, 1 ♂; Franca, 1 (?); Rio de Janeiro, La Raiz, 1 ♂, 1 ♀; "Rio," 1 (?); Matto Grosso, Campanario, 1 ♂, 1 ♀; Rio Amambary, 1 ♂; Chapada, 10 ♂, 5 ♀, 1 (?); Descalvados, 1 ♂, 1 ♀; São Lorenzo River, 2 ♂; Tapirapoan, 1 ♂; Agua Blanca de Corumbá, 1 ♀; "Brazil," 1 (?). Paraguay: Sapucay, 1 ♂; Puerto Pinasco, 1 ♂; Villarica, 1 ♀. Bolivia: Tres Arroyos, 1 ♂; Todos Santos, 1 ♂, 3 ♀; Province of Sara, 1 ♀. Venezuela: Río Orinoco, Altagracia, 2 ♂.

1 ♀; Perico, 1 ♂; Caicara, 1 ♂, 1 ♀; Maripa, 1 ♂, 1 ♀; Ciudad Bolívar, 1 ♂; Sacupana, 1 (?); mouth of Río Chanaro, 2 (?); Río Caura, La Unión, 1 ♂; La Prición, 1 (?); Mato River, 1 ♂; Río Orinoco, 1 ♂. COLOMBIA: Villavicencio, 1 ♂, 3 ♀.

*M. f. venezuelensis.*—VENEZUELA: (no exact locality), 1 (?) (type); Puerto La Cruz, 1 ♂; Las Trincheras, 1 ♂.

*M. f.* subsp.?—"VENEZUELA: La Prición," 1 ♀.

*M. f. panamensis.*—COLOMBIA: Bagado, 1 ♀; Tumaco, 2 ♀; Chicoral, 1 ♀; Puerto Berrio, 1 ♂, 1 ♀; Malena, 1 (?); Turbaco, 1 ♀; "Bogotá," 2 (?); Santa Marta, 1 ♂, 1 ♀; Donama, 1 ♂, 1 ♀; Buritaca, 1 ♂, 1 ♀; Bonda, 3 ♂, 7 (?). PANAMÁ: [Lion Hill ?], 4 ♂ (incl. type), 1 ♀; La Chorrera, 1 ♀; Savanna near Panamá, 3 ♂, 2 ♀; Monte Oscuro, 1 ♂, 1 ♀; Barro Colorado Island, 1 ♀; Boquete, 1 ♂, 1 ♀; Bogava, 1 ♀; Cape Mala, Cerro Largo, 1 ♂, 1 ♀; El Villano, 3 ♀; Agua Dulce, 1 ♀; Santa Fé, Veraguas, 5 ♂, 3 ♀; Cocoplum, 1 ♂, 1 ♀; Cerro Flores, 1 ♂; Coiba Island, 3 ♂; Pearl Islands, 1 ♀; Brava Island, 1 ♂, 3 ♀. COSTA RICA: El Zapotal, Guanacaste, 1 ♂.

*M. f. actiosus.*—COSTA RICA: Punta Piedra, 7 ♂, 5 ♀; El Zapotal, 1 ♂.

### Myiarchus cephalotes cephalotes Taczanowski

*Myiarchus cephalotes* TACZANOWSKI, 1879, P. Z. S. London, p. 671—Tambillo, Perú; ♂; type formerly in Warsaw Mus., now lost.

Specimens from most of the Peruvian range of this species, excepting the extreme southeastern portion of the country, are fairly uniform. The throat is moderately pale grayish but not whitish, although there are some streaks of white on the edges of some of the gular feathers. The back is dark grayish olive-brown and the top of the head is decidedly darker and browner. The outer web of the outer tail-feathers is pale in comparison to the adjacent inner web but it is far from clear whitish or yellowish except along the outer margin which is separated from the shaft by a distinctly darker stripe. The pale margin usually is quite narrow; in one or two examples it is wider than the dark stripe, but it never reaches the shaft.

Ecuadorian specimens are in agreement with these characters and are, therefore, referable to typical *cephalotes*. Bolivian birds appear to be different and specimens from extreme southeastern Perú agree with them as described below. Colombian specimens are still different and deserve recognition as a separable subspecies, also described below.

Three young males from Chaupe, Perú, are much like the adults of both sexes in general aspects but differ in many details. The upper parts are decidedly warmer in tone, the margins of the secondaries are light cinnamon-brown instead of yellowish olive, although the edges of the tertials are still whitish; the wing-bars also are strongly cinna-

momeous toward the carpal border, much paler toward the inner end; the lesser upper wing-coverts are tipped with cinnamon; the inner margins of the remiges are pinkish buff rather than yellowish; the outer margins of the rectrices are rufous brown except on the outermost pair where the pattern of the adult is present with some modifications (two of the birds have a fine, dusky line separating the clear yellowish outer border from the dull shaft-stripe); the entire under parts are duller than in the adults and the tips of the longest under tail-coverts are tinged with cinnamon.

Peruvian records which probably belong to typical *cephalotes* are from Tambillo, Tabaconas, Tamiapampa, Chirimoto, Paltaypampa (Junín), Ropaybamba, La Merced, Garita del Sol, and Huachipa.

**Myiarchus cephalotes caucae,** new subspecies

TYPE from Santa Elena, Antioquia, Colombia; altitude, 9000 feet. No. 133,794, American Museum of Natural History. Adult male collected November 17, 1914, by L. E. Miller and Howarth Boyle.

DIAGNOSIS.—Similar to *M. c. cephalotes* of northern Perú but averaging a little lighter colored on the upper parts and less deeply yellow on the belly and with the outer web of the outermost rectrices more completely whitish or pale yellowish; bill averaging larger.

RANGE.—Central Colombia in the Subtropical Zone of the Central Andes east of the middle stretches of the Cauca River but spreading in the south to the Western Andes and the headwaters of the Río Magdalena.

DESCRIPTION OF TYPE.—Top of head Brownish Olive × Dark Olive with moderately inconspicuous shaft streaks of sooty brown; back Olive × Dark Olive, becoming slightly paler on the rump; upper tail-coverts browner with somewhat paler margins. Lores dull grayish, continuous with the color of the malar region; auriculars a little darker than the back and anteriorly tinged with gray; breast Pale Neutral Gray with chin and throat very little paler; belly Primrose Yellow × Reed Yellow; under tail-coverts paler, nearer Primrose Yellow. Wings blackish brown; secondaries with narrow outer margins of Pale Yellowish Olive, brighter and broader on the inner feathers where also the margins tend to round the tips; tertials with outer margins still broader and paler, Marguerite Yellow, sharply defined; inner margins of remiges yellowish white, sharply defined; under wing-coverts like the belly; greater and median upper wing-coverts blackish brown with broad tips of Olive-Buff and with fine outer margins of the same color on the greater series; lesser series much like the back, some lower feathers with slightly paler tips. Tail Fuscous-Black with faintly lighter tips; outer web of outermost rectrices largely pale yellow, the color reaching the shaft on the subterminal half of the feather (with some indistinct darker barring but no complete separation of margin and shaft by a continuous shaft-stripe as in *cephalotes cephalotes;* terminal tenth and basal third of outer web tinged with pale brownish except on outer margin but not as dark as the inner web. Bill (in dried skin) black, feet blackish brown. Wing, 90 mm.; tail, 90; exposed culmen, 17; culmen from base, 22; tarsus, 20.5.

REMARKS.—Female similar to the male but slightly smaller. Wing, 86–87.5 (♂, 90–97.5); tail, 83–87 (♂, 90–95).

An occasional specimen has the dark area near the tip of the outer web of the outer rectrices about as dark as the adjacent area of the inner web. At the other extreme, the dark area on the basal portion of the web may be nearly obsolete. No specimen of the Colombian series has the strong, dark line separating the yellow margin from the shaft which is present in the Peruvian birds.

The dorsal coloration of *caucae* is not constant and various Colombian specimens are indistinguishable, on this character, from Peruvian specimens of *cephalotes*. The outer web of the outer tail feathers shows the most constant distinction between the two forms. One specimen from east of Palmira, Colombia, has this outer web a little darker than usual, agreeing with several of the Peruvian birds but still distinguishable from most of the series of typical *cephalotes*. In the other Colombian birds examined, there is a positive and recognizable difference, and the most strongly marked specimens from this region have the outer web of the outermost rectrices as sharply pale as in *caribbaeus*, although they differ from *caribbaeus* in other respects such as the less whitish throat and average narrower whitish edges of the tertials.

**Myiarchus cephalotes gularis,** new subspecies

TYPE from Locotal, Province of Cochabamba, Bolivia; altitude 5800 feet. No. 137,660, American Museum of Natural History. Adult male collected May 30, 1915, by L. E. Miller and Howarth Boyle.

DIAGNOSIS.—Similar to *M. c. cephalotes* of central and northern Perú but with the breast paler gray and the throat noticeably whiter, the upper parts averaging paler and more olivaceous, and the outer web of the outer rectrices (in dorsal aspect) averaging more broadly whitish or yellowish. Compared wth *C. c. caucae* of Colombia, the characters are as given above except that the outer web of the outer rectrices averages less broadly pale. Compared with *C. c. caribbaeus* of Venezuela, the upper and under parts are very similar but in *caribbaeus* the outer web of the outer rectrices is more consistently pale (even in comparison with *caucae*) and clearer white, the outer margins of the tertials are distinctly broader and whiter, and the wing-bars are stronger.

RANGE.—Subtropical Zone of northern Bolivia in the Departments of Santa Cruz, Cochabamba, and La Paz, extending westward into extreme southeastern Perú.

DESCRIPTION OF TYPE.—Top of head somewhat warmer than Brownish Olive, with darker shaft-stripes; back lighter than Dark Greenish Olive; upper tail-coverts brown with brighter margins. Lores whitish or pale grayish; malar region similar; auriculars darker gray; chin and throat distinctly whitish, passing into Pallid Neutral Gray on the breast; belly and under tail-coverts Barium Yellow. Wings sooty brown; secondaries with narrow outer margins dull yellowish; tertials with

margins a little wider and more whitish; upper wing-coverts blackish brown; greater series with narrow outer margins Olive-Buff; median series with tips rather broadly dull Olive-Buff; lesser series with rather inconspicuous pale tips only on the lower feathers; under wing-coverts like the belly, with a dark area near the base of the primaries; inner margins of the remiges dull whitish or pale yellowish. Tail Fuscous with brownish olive outer margins except on outermost pair which (in dorsal aspect) have the outer web pale brownish adjoining the shaft but with a narrower outer margin of clear light yellow, not reaching the tip nor the base of the feather. In ventral aspect, the outer web of the outer feather appears more uniformly pale than in dorsal aspect. Bill (in dried skin) blackish; feet blackish. Wing, 91 mm.; tail, 88; exposed culmen, 15.25; culmen from base, 21; tarsus, 20.5.

REMARKS.—Females similar to the males in color but somewhat smaller. Wing, 85–87 (♂, 89.5–91); tail, 81–87 (♂, 87–88). One bird without given sex has the wing 92; tail, 90. It is probably a male and of maximum size. One bird sexed as a male has the wing 86; tail, 82.5. Its measurements agree with those of the other birds sexed as females and I judge it to be wrongly sexed.

Two specimens are at hand from southeastern Perú, a male from Santo Domingo and a female from Oroya. The female is an unquestioned *gularis;* the male is not quite so well marked. Association with *gularis* rather than with *cephalotes* is probable also on geographic grounds. There are no additional records from this part of Perú. No records exist from the area between the Inambari Valley and the Junín and Chanchamayo regions, although the species is likely to be found somewhere in the intervening mountains. Hellmayr's record of the species from Chaquimayo and Chapman's record from Río San Miguel have both been transferred by Hellmayr (1927) to *M. f. ferox.*

It is interesting to note that in this species, as in various other birds, the existing peripheral forms, *gularis* and *caribbaeus,* from Bolivia and Venezuela, respectively, are similar in many respects by which they differ from the intervening subspecies.

### SPECIMENS EXAMINED

*M. c. cephalotes.*—PERÚ: Chachapoyas, 2 ♂; San Pedro, 1 ♂; Molinopampa, 1 ♀[1]; Uchco, 1 ♂[1]; Levanto, 1 ♂; Nuevo Loreto, 1 [♀ ?]; Vista Alegre, 1 ♂[1]; Chinchao, 4 ♂[1], 2 ♀[1]; Chaupe, 6 ♂, 2 ♀; Utcuyacu, 2 ♂, 2 ♀; Rumicruz, 1 ♂, 1 ♀; Chelpes, 1 ♂, 1 ♀, 1 (?); Garita del Sol, 1 ♂. ECUADOR: Loja, 1 ♀; Archidona, 1 ♂; Baños, 1 (?); Baeza, 2 ♂, 1 ♀; upper Sumaco, 1 ♀; Río Oyacachi, 1 ♂.

*M. c. gularis.*—BOLIVIA: Locotal, 1 ♂ (type), 2 ♀; Vermejo, 1 ♂, 1 ♀; Roquefalda, 1 ♀; Mapiri, 1 [♂ ?]; Yungas, 1 [♀ ?]; Pitiguaya, 1 "♂" [= ♀ ?], 1 [♀ ?]. PERÚ: Santo Domingo, 1 ♂; Oroya, Río Inambari, 1 ♀.

*M. c. caucae.*—COLOMBIA: Santa Elena, 1 ♂ (type), 1 ♀, 1 [♂ ?]; La Candela,

[1] Specimens in Field Museum of Natural History, Chicago.

1 ♀; east of Palmira, 1 ♂, 2 ♀; above Salento, 1 ♂; Salento, 1 ♀; El Eden, 1 ♂; "Cauca Valley," 1 ♂; "Bogotá," 1 [♀ ?]; Río Toche, 1 ♂.

*M. c. caribbaeus.*—VENEZUELA: Carapás, 1 ♂; Galipán, 2 ♂, 3 ♀; Loma Redonda, 1 ♂; Maracay, Aragua, 1 (?).

**Myiarchus tuberculifer tuberculifer** (D'Orbigny and Lafresnaye)

*T[yrannus] tuberculifer* D'ORBIGNY AND LAFRESNAYE, 1837, Mag. Zool., cl. 2, "Syn. Av.," p. 43—Guarayos, Bolivia; Paris Mus.

*Myiarchus gracilirostris* PELZELN, 1868, 'Orn. Bras.,' II, p. 183—Villa Maria (= São Luiz de Caceres), Matto Grosso, Brazil; Vienna Mus.

*Myiarchus coalei* RIDGWAY, 1887, Proc. U. S. Nat. Mus., IX, p. 520—Orinoco Valley; U. S. Nat. Mus.

The range of the typical form in Perú is confined to the Humid Tropical Zone. I have specimens from the junction of the Urubamba and Ucayali rivers, from "Chanchamayo," and from Río Seco, west of Moyobamba, all high up in the Tropical Zone. At only a little higher elevation, in the Subtropical Zone, the related form *atriceps* is found. A discussion of the relationship will be given under *atriceps*.

Except for some of the specimens listed among the material examined, the only records of typical *tuberculifer* from Perú are from Iquitos.

The series of *tuberculifer* shows some definite differences in different parts of the range that may be taxonomically important. The birds from northern Bolivia, eastern Perú, eastern Ecuador, the upper Amazon, the Rio Negro (Brazil), and the region near Mt. Duida (Venezuela) are rather uniformly dark olive on the back and rather dark gray on the chest, with the top of the head sooty brown. Skins from the northern coast of Venezuela and the Santa Marta region of Colombia are, for the most part, distinctly paler and more greenish on the back, with the top of the head slightly paler and the chest whiter; the outer margins of the secondaries, furthermore, often show a decided cinnamomeous cast which is not certainly due to immaturity since various immature specimens are recognizably distinct in various particulars. Unfortunately, the available north-Venezuelan and Santa Martan skins are mostly considerably older than the dark Amazonian specimens. A few fresher birds from the mountains behind Cumaná are darker than the other north-coastal birds while, in contrast, an old Peruvian bird is brighter than most Venezuelan skins. This Peruvian bird (from "Chanchamayo") is very like lower Amazonian skins and may be a mislabeled skin of the new form described hereunder. On the other hand, Trinidad birds are quite comparable to the dark Peruvian-Bolivian specimens. Orinocan skins, of moderate age, are somewhat intermediate

between the two extremes. The name, *coalei*, based on an "Orinoco-skin," might be available for a separable form in the northern region, if positive distinction can be established. A good series of fresh specimens from Santa Marta, the Orinoco, and the north-coast of Venezuela will be needed to establish such distinction.

I am unable to refer lower Amazonian birds to *tuberculifer* or to *tricolor* and describe a new form, as follows.

**Myiarchus tuberculifer clarus,** new subspecies

TYPE from Taparâ, Rio Xingú, Brazil. No. 429,772, American Museum of Natural History. Adult female collected August 23, 1931, by Alfonso M. Olalla.

DIAGNOSIS.—Similar to *M. t. tuberculifer* of northern Bolivia but with the top of the head paler, less contrasting with the back, by reason of duller centers and more olivaceous margins on the feathers. Back rather brighter olive than in typical *tuberculifer*.

RANGE.—Both banks of the lower Amazon and adjacent parts of the tributaries, at least on the Tapajoz, Xingú, and Jamundá rivers, extending northward to Dutch (and, presumably, French) Guiana.

DESCRIPTION OF TYPE.—Back between Citrine-Drab and dark Krönberg's Green, with dusky central areas exposed when the feathers are disarranged; top of the head Dark Olive with the feathers edged and tipped with brighter olive, especially over the eyes where the general color is much like that of the back; lores light gray; auriculars dull brownish; upper tail-coverts tinged on the margins with a slight brownish hue. Chin and throat pale gray, with somewhat whitish streaks; breast slightly darker, near Pallid Neutral Gray; lower under parts Barium Yellow; sides of breast near the color of the back. Wings sooty brown; primaries only faintly edged exteriorly with paler; secondaries more broadly margined with yellow; tertials still more prominently margined with light yellow; under wing-coverts Naphthalene Yellow; inner margins of remiges dull whitish. Tail dark brown with faintly paler terminal area, not conspicuous; outer margins dull Citrine-Drab, broadest basally, but outermost rectrix with a narrower, sharper, and more yellowish marginal line. Bill, in dried skin, blackish brown; feet black. Wing, 78.5 mm.; tail, 70.25; exposed culmen, 14.25; culmen from base, 18.25; tarsus, 17.5.

REMARKS.—Males similar to the females in color but averaging larger.

In discussing *M. t. tricolor*, Todd (1922, Proc. Biol. Soc. Wash., XXXV, pp. 211–212) was handicapped by lack of specimens from any locality nearer the type-locality (Rio de Janeiro) than the Pará district. I have three skins from the state of Espirito Santo and two from that of Bahia, and these are quite unlike specimens from the lower Amazon. They have the top of the head fully as dark as does *tuberculifer* from which they differ very slightly; the pectoral region is paler gray (as in *clarus*) and the size is slightly smaller than that of *tuberculifer* (wing: ♂, 77.25–78 mm.; ♀, 69–71.75).

I have only a single specimen from the Pará district and it is so badly abraded that its distinctive characters are lost. Hellmayr [1927, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII (5), p. 191, footnote b] notes that the types of *tricolor* and several skins from Bahia are smaller and paler below than a series from Maranhão and Pará. The Pará skin now before me is nearly as small (wing, 72 mm.) as that of the Espirito Santo and Bahia birds and the top of the head appears to be darker than in the lower Amazonian series. I am unable, therefore, to say with any certainty that the Pará population belongs either to *tricolor* or to *clarus*, although the single specimen now at hand is very like *tricolor*.

I have only two specimens from Dutch Guiana. One of these is very like the lower Amazonian birds; the other might be referred to *tuberculifer*, to which a British Guianan skin more certainly belongs.

The Peruvian skin from "Chanchamayo," mentioned in the discussion of *tuberculifer*, is a close match for some of the specimens of *clarus* and is totally unlike any other Peruvian bird examined. It would not be surprising to find that it is wrongly labeled as to locality although it may be an unusual individual variant of the typical form. It does not agree with old and faded skins of true *tuberculifer* from other localities nor with the north-Venezuelan examples discussed under that form.

The arrangement of the Central American forms also is far from satisfactory. It appears probable that *olivascens* does not breed south of Durango and Sinaloa, Mexico, and that examples from south of this range are but wintering individuals in the range of *querulus*. A January specimen from Escuinapa is marked: "arrives in October"; and April birds from Río Sestin, Durango, are marked: "arrives in April, breeds in May."

The highland form in Guatemala, as stated by Miller and Griscom, is *lawrenceii* of eastern Mexico. At lower elevations in Guatemala is *connectens*, differing from *lawrenceii* only by smaller size. Its type locality is in the highlands of Nicaragua, in the Caribbean drainage. Birds from the Pacific lowlands of Nicaragua are rather different, averaging definitely paler above than typical *connectens*, although one specimen from near the type locality of *connectens* is nearly as pale. Skins from the Pacific region of northwestern Costa Rica also are of this pale nature and there is a suggestion of the same tendency (far from uniformly) in a few examples of *connectens* from the Pacific slopes of Guatemala. Furthermore, certain birds from near San José

and Cartago, Costa Rica, are intermediate between this pale variant and *nigricapillus* which, in turn, is intermediate between them and the still darker *bangsi* of western Panamá. Unless a pale subspecies be recognized, these western birds perhaps should be referred to *nigricapillus* which they resemble rather more than they do *connectens*.

There are no sharp lines between any of these forms, although average specimens are easily recognizable; extremes in one direction or another are likely to be confused with an adjacent form.

Farther south, *brunneiceps* of eastern Panamá appears to range through most of central and western Colombia. Birds from this Colombian region have been referred heretofore to *nigriceps* toward which, in fact, they show some tendencies. True *nigriceps*, however, has a very black cap while the Colombian birds do not, agreeing in the brownish hue of that area with the east-Panamanian birds. The back of the Colombian specimens is not always so clear green as in the type and some other Panamanian specimens of *brunneiceps* but sometimes it is equally so; sometimes it approaches *nigriceps* in grayish tone. Three skins from Andalucia and one Bogotá trade-skin show the only strong suggestions of the black cap of *nigriceps*.

**Myiarchus tuberculifer atriceps** Cabanis

*Myiarchus atriceps* Cabanis, 1883, Jour. für Orn., XXXI, p. 215—San Xavier, Tucumán, Argentina; cotypes in Berlin Mus.?

Birds from Argentina, Bolivia, and southeastern Perú, from the Junín region southeastward, show the maximum measurements of the Andean populations (wing: ♂, 89–94 mm.; ♀, 82.5–88.5). Northward in Perú there is some reduction in size (wing: ♂, 84–90; ♀, 78.5–86). The west-Ecuadorian *nigriceps* is still smaller (wing: ♂, 72–83 in northern examples, increasing to 79–86 in the southern part of the country). So exact is the overlap that it is impossible to draw a definite line of distinction. The cañon of the Río Marañón and the crest of the Western Andes are equally unsatisfactory as boundary lines and if the specimens are arranged on either such basis, the overlap in measurements is emphasized. The least difficulty appears when *atriceps* is restricted (in the north) to Perú and *nigriceps* to Ecuador. Thus *nigriceps* crosses the Andes to the eastern side on the upper waters of the Río Zamora and also reaches the Alamor Range near the boundary between Perú and Ecuador. On the other hand, *atriceps* crosses the Marañón to the eastern side of the western Andes and also, in a limited area, crosses the Andes to their western side.

This arrangement leaves *atriceps* with a wing measurement in the males of 84–94 mm.; females, 78.5–88.5. The males of *nigriceps* then have the wing 72–86 mm.; females, 71–80.

Specimens from the upper Río Zamora in eastern Ecuador (Zamora, Sabanilla, and Guayaba) and one from San Ignacio, Perú, all show some trend toward typical *tuberculifer* in respect to the color of the top of the head. This area in the specimens mentioned is not so deep black as usual but has a slight brownish tinge, particularly pronounced in the San Ignacio bird. When compared with examples of *tuberculifer* from farther east in Perú and Ecuador, the birds in question show closer resemblance to *atriceps* and *nigriceps* to which, respectively, I have referred them.

Two birds from Roquefalda, Cochabamba, Bolivia, agree with *atriceps* in the clear greenish color of the back and, furthermore, have the top of the head rather strongly blackish though not so deep black as *atriceps*. In size, however, they are small. The only adult, a female, has the wing only 76 mm., in agreement with the females of *tuberculifer* but much less than the females of *atriceps* from the nearby highlands although females from the northernmost part of the range of *atriceps* are nearly as small. Actually, these Roquefalda birds match rather closely the specimens from the Río Zamora and San Ignacio which I have referred to *atriceps* and *nigriceps*, respectively. Roquefalda appears to be at a high elevation, probably in the Subtropical Zone, and the two specimens in question may, therefore, be small and dull examples of *atriceps* rather than the other extreme of *tuberculifer*. The important point is that there is evident intergradation at points of contact between the ranges of the Tropical Zone and Subtropical Zone forms and these forms must be considered as zonal, as well as geographical, representatives of the same species.

It is probable that *atriceps* is rather strictly an inhabitant of the Subtropical Zone, although it reaches the lower limits of that zone. The Ecuadorian *nigriceps* appears to invade the Tropical Zone to a limited extent, although it, also, is primarily a Subtropical Zone bird. In Colombia, *brunneiceps* is largely confined to the Tropical Zone but, as noted on an earlier page, birds from Andalucia, in the Subtropical Zone, show noticeable intermediacy between *brunneiceps* and *nigriceps* although they are best referable to *brunneiceps*.

Earlier records from Perú which must belong to *atriceps* are from Tambillo, Cutervo, Callacate, Huambo, Tamiapampa, Malca, Paucal, Tabaconas, "Huayabamba" [= above Huambo, 5400 feet], Paltay-

pampa, Pumamarca, Maraynioc, Torontoy, Huaynapata, and Cachupata.

SPECIMENS EXAMINED

*M. t. tuberculifer.*—BOLIVIA: Mission San Antonio, 1 ♀; mouth of Río San Antonio, 1 ♂; Roquefalda, 1 ♂, 1 ♀. PERÚ: Lagarto, 1 ♂, 1 ♀; Río Colorado, 1 ♂[1]; "Chanchamayo, 1 ♂"[2]; Puerto Indiana, 1 ♂, 1 ♀; Río Seco, west of Moyobamba, 2 ♂. ECUADOR: mouth of Río Curaray, 2 ♂; lower Río Suno, 1 ♀. COLOMBIA: Buena Vista, 1 ♀, 1 (?); "Bogotá," 3 (?); Santa Marta, Cacagualito, 1 ♂, 3 ♀; Onaca, 2 [♂ ?], 1 [♀ ?]; Las Nubes, 1 ♀; Minca, 2 ♂, 4 ♀, 3 [♀ ?]; Valparaiso, 3 [♀ ?]. VENEZUELA: Mérida, 2 ♀, 2 (?); Escorial, 1 ♀; El Valle, 1 ♂; Culata, 1 ♂, 1 ♀; San Antonio, Bermúdez, 2 ♂; Cristóbal Colón, 1 ♀; Las Trincheras, 1 ♂, 1 ♀; El Guácharo, 1 ♂; Quebrada Seca, 2 ♂, 1 ♀; La Tigrera, 2 ♂, 1 ♀; Los Dos Ríos, 1 ♂; Santa Ana Valley, 1 ♂; Campos Alegre Valley, 1 ♂, 1 ♀; Caripé, 2 (?); Loma Redonda, 1 ♂; La Latal, 1 ♂, 1 ♀; Río Neveri, 1 ♀; Caicara, 1 ♂, 1 ♀; Nericagua, 2 ♀; Quiribana de Caicara, 1 ♂, 1 ♀; Ayacucho, 1 ♀; mouth of Río Ocamo, 1 ♂, 1 ♀; Río Cassiquiare, El Merey, 2 ♀. TRINIDAD: Aripo, 1 ♂; Caparo, 1 ♂, 2 ♀; Princestown, 1 ♀. BRITISH GUIANA: Carimang, 1 ♂. BRAZIL: Rio Negro, Muirapinima, 1 ♀; Rio Branco, Serra Grande, 1 ♂[1]; Rio Madeira, Igarapé Auará, 1 ♂, 1 ♀; Rosarinho, 3 ♂; Marmellos, 1 ♂.

*M. t. tricolor.*—BRAZIL: Espirito Santo, Lagôa Juparaná, 1 ♂, 2 ♀; Bahia, Bôa Nova, 1 ♂, 1 ♀.

*M. t. clarus.*—BRAZIL: Rio Xingú, Tapará, 1 ♀ (type); Rio Tapajoz, Caxiricatuba, 1 ♀; Igarapé Amorin, 1 ♂; Igarapé Brabo, 1 ♂; Rio Amazonas, Villa Bella Imperatríz, 2 ♀; Rio Jamundá, Faro, 2 ♀. DUTCH GUIANA: near Paramaribo, 2 ♀.

*M. tuberculifer* subsp.?—BRAZIL: Pará, Igarapé Assu, 1 ♀.

*M. t. atriceps.*—ARGENTINA: Tucumán, 1 ♂; above San Pablo, 1 ♂. BOLIVIA: Mizque, 1 ♂. PERÚ: Limbani, 1 ♂; Inca Mine, 1 ♂; Santo Domingo, 5 ♀; Chelpes, 3 ♂, 2 ♀; Panao, 1 ♀[1]; Chinchao, 1 ♀[1]; Huánuco, 4 ♂[1], 4 ♀[1]; Huachipa, 1 ♂[1]; Hacienda Llagueda, 1 ♂[1]; Hacienda Limón, 1 ♂[1]; Lomo Santo, 1 ♂, 1 ♀; Taulis, 1 ♂, 1 ♀; La Lejia, 1 ♀; San Felipe, 1 ♀; Cajabamba, 1 ♂, 1 ♀; San Ignacio, 1 ♀.

*M. t. nigriceps.*—ECUADOR: Celica, 1 ♂; Sabanilla, 1 ♀; Guayaba, 1 ♂; Zamora, 1 ♂; Salvias, 1 ♀; Portovelo, 1 ♂; Zaruma, 1 (?); Esmeraldas, 1 ♂, 1 ♀; Paramba, 1 ♂, 2 ♀; San Javier, 1 ♂; Chimbo, 1 ♂, 1 ♀; Gualea, 3 ♂; Intag, 2 ♂, 2 ♀; San Nicolas, 1 ♂; Chongon Hills, 1 ♂; Chone, 1 ♂; Coco, 1 ♂; San Bartolo, 1 ♂; Guachanamá, 1 ♀.

*M. t. brunneiceps.*—PANAMÁ: [near Lion Hill], 1 ♀ (type); Chepigana, 1 (?); Cituro, 1 ♀; Tacarcuna, 1 ♀; east slope of Mt. Tacarcuna, 1 ♀. COLOMBIA: Río Frio, 1 ♀, 1 (?); Dabeiba, 2 ♂; Alto Bonito, 1 ♂, 1 ♀; Cali, 1 ♂; San José, Cauca, 1 ♂, 2 ♀; Juntas de Tamaná, 1 ♂; "Juntas," 1 ♂; Andalucia, 1 ♂, 2 ♀; "Bogotá," 1 (?).

*M. t. bangsi.*—PANAMÁ: Boquete, 1 ♂, 1 (?); Boqueron, 1 "♀" [= ♂ ?]; Santa Fé, 1 ♂, 7 ♀, 1 [♀ ?]; El Villano, 1 ♂; Cerro Montoso, 1 ♂; Cerro Flores,

[1] Specimens in Field Museum of Natural History, Chicago.
[2] Not typical.

1 ♂, 2 ♀, 1 (?); Almirante, 2 ♂, 2 ♀; Wilcox Camp, 1 ♀; Chitrá, 1 ♀. COSTA RICA: Buenos Aires, 4 ♂, 1 ♀; Volcán de Oso, 2 ♀; Puerto Jiménez, 1 ♀; El Pozo, 5 ♂, 1 ♀.

*M. t. nigricapillus.*—COSTA RICA: (Bonilla, Guayabo, Cartago, Navarro, Navarrito, Limón, San José, Agua Caliente, Las Cañas, Guacimo, Carrillo, Aquinares, San Pedro), 21 ♂, 11 ♀, 1 (?). NICARAGUA: San Francisco, San Juan River, 1 ♂.

*M. tuberculifer* subsp.?—NICARAGUA: Tipitapa, 1 ♂; Chinandega, 2 "♂" [= ♀ ?], 1 (?) [= ♂ ?], Volcán de Chinandega, 1 ♀; Volcán Viejo, 2 ♂, 1 ♀; Corinto, 2 ♂, 3 ♀. COSTA RICA: Miravalles, 2 ♀; Bebedero, 1 ♀; El Zapotal, 2 ♀.

*M. t. connectens.*—NICARAGUA: Las Cañas, 1 ♂ (type); San Rafael del Norte, 1 "♂" [= ♀ ?], 1 ♂; Matagalpa, 1 ♀, 1 (?); Ocotal, 1 ♀. HONDURAS: Ceiba, 2 ♂. GUATEMALA: (Finca Carolina, Secanquim, Finca Sepacuite, Hacienda California, Finca Cipres, Finca Chamá, Finca Concepción, Chipoc, Chimoxan, Pantaleon, Vera Paz, Puebla, Finca La Primavera, Chalachi, San Felipe, "Guatemala"), 47 ♂, 34 ♀, 15 (?).

*M. t. lawrenceii.*—GUATEMALA: (Huehuetenango, San Lucas, Nebaj, Panajachel, Lake Amatitlan, Antigua, Sacapulas, San Antonio), 12 ♂, 13 ♀, 2 (?). MEXICO: (Jalapa, Mexico City, Boque Negro, Montemorelos, Boquilla, Victoria, Río Pilón, Tlacotalpan), 20 ♂, 7 ♀.

*M. t. olivascens.*—MEXICO: (Juan Lisiarraga Mts., Escuinapa, Los Pieles, San Blas, Río Sestin, Barranca de Cobre), 10 ♂, 5 ♀. UNITED STATES: Fort Huachuca, 1 ♀; Huachuca Mountains, 1 ♂; Santa Rita Mountains, 2 ♂, 2 ♀; Pinal Co [Arizona], 1 ♂.

*M. t. querulus.*—MEXICO: Los Canoas, Colima, 1 ♂; Volcán de Nieve, 1 ♀; Wakenakili Mountains, 1 ♂.

*M. t. platyrhynchus.*—MEXICO: Yucatan, 2 (?); Cozumel Island, Quintana Roo, 1 ♀.

*M. t. tresmariae.*—MEXICO: Tres Marias Islands, Maria Madre, 1 ♂, 3 ♀, 1 (?); Cleofa Island, 1 ♀.

### **Myiarchus semirufus** Sclater and Salvin

*Myiarchus semirufus* SCLATER AND SALVIN, 1878, P. Z. S. London, p. 138, Pl. XI—Pacasmayo, Perú; Steere Coll. (repository unknown to me).

This species has a very restricted range, being confined to the Arid Tropical Zone of northwestern Perú, ascending the western slope of the Western Andes above Trujillo as high as 1500 feet.

This bird stands somewhat apart from the general assemblage of species in the genus *Myiarchus* in which it appears to have no very close relative. The color is predominantly rufous instead of gray and yellow; the plumage is rather coarse in texture; the crest is rather long; the scutellation of the tarsus is a little rougher than usual; the bill is relatively long, somewhat flattened, and convex in lateral outline to near the narrow tip. Nevertheless, except for the color, the char-

acters are not perfectly diagnostic. The tiny tubercle on the under side of the wing at the base of the outer primary is present as in other members of *Myiarchus* (as well as in *Hylonax* and *Eribates*), pointing to close affinity. I believe that *Muscifur* of Bangs and Penard, erected for *semirufus*, is of good subgeneric value but that it is not entitled to full generic rank.

Records of *semirufus* are from Pacasmayo, Sullana, Chepen, Tumbez, Guadalupe, and Chimbote.

SPECIMENS EXAMINED

*M. semirufus*.—PERÚ: Somate, 3 ♂, 2 ♀; Virú, 3 ♂, 5 ♀; Chilaco, 3 ♂; Pilares, 1 ♂; Chepen, 1 ♂; Trujillo, 1 ♂; Trembladera, 2 ♂, 1 ♀.

**Mitrephanes phaeocercus olivaceus** Berlepsch and Stolzmann

*Mitrephanes olivaceus* BERLEPSCH AND STOLZMANN, 1894, Ibis, p. 391—Garita del Sol, Perú; ♂; Warsaw Mus.

There appears to be but a single form in Perú which ranges from the northern part of the country to the southeastern corner, following the Andes and apparently restricted to the upper part of the Humid Tropical Zone.

I have already (1930, Field Mus. Nat. Hist. Publ., Zool. Ser., XVII, p. 378) described the immature plumage of this form which bears a decided resemblance to that of *aurantiiventris*, *nicaraguae*, *quercinus*, *eminulus*, and probably the remaining members of the species *phaeocercus*. There is nothing in the series of juvenal plumages to suggest any specific separation, but rather the contrary; the specific unity of the entire group already has been proposed by Hellmayr.

The adults show a nearly perfect transition between the most nearly uniform brownish pattern, in typical *phaeocercus* of eastern Mexico, to the most nearly uniform greenish birds, *olivaceus* of Perú, with the development of clearest yellow on the belly about the middle of the row. The upper parts show the transition from brown to green with less interruption. In size, according to the material at hand, *phaeocercus*, *tenuirostris*, and *quercinus* are the largest, *vividus*, *eminulus*, and *berlepschi* the smallest, and *nicaraguae*, *aurantiiventris*, and *olivaceus* intermediate.

The first annual plumage of the various subspecies appears to be recognizably distinct from both the juvenal and adult plumages. The general body plumage is like that of the adult, occasionally slightly duller, while the wings and tail are intermediate. The lesser upper wing-coverts are conspicuously, though narrowly, tipped with cinna-

mon-buff or pale cinnamon; the two wing-bars are narrow, buffy or cinnamon, often becoming whitish on the inner portion of the lower bar, and very sharply defined; the outer margins of the tertials are more whitish and broader than in the adults. The rectrices are finely tipped with buffy color; the upper tail-coverts are near the color of the back but have fine whitish tips. These markings are all modifications of the juvenal pattern but are paler and finer and might be thought to represent actual juvenal feathers from which the marginal portion of the webs had been worn away and the remaining color faded, thus indicating the post-juvenal molt to be but partial. I am not sure that this is the case, however. The main portion of the webs of the remiges and rectrices is a little blacker in the first annual plumage and, in the greener-backed subspecies, there appears to be a slightly greater approach toward the adult olive color on the outer margins of the rectrices and on the upper tail-coverts. Occasional specimens in fresh condition are even more like the adults with only a trace of the pale, immature markings. It may be added that the type of *vividus* from Panamá is in the first annual plumage.

In Central America there has been considerable differentiation of subspecies. These are not always strongly marked but are recognizable in series, although the ranges of some of them are rather restricted. I am unable to place *Mitrephanes phaeocercus pallidus* Carriker and de Schauensee (1935, Proc. Acad. Nat. Sci. Phila., LXXXVII, p. 435—Guatemala City) satisfactorily in this series. Two specimens at hand from Guatemala City are definitely *quercinus*, having been identified by van Rossem, one of the co-authors of that subspecies, and agreeing with eight other Guatemalan specimens of that form. On the other hand, the description of "*pallidus*" agrees in detail with a specimen of *Empidonax fulvifrons fusciceps* from Guatemala and I suspect that "*pallidus*" is a redescription of that bird. The whitish outer web of the outer rectrices is rather characteristic.[1]

The two Colombian specimens recorded by Chapman (1917, Bull. Amer. Mus. Nat. Hist., XXXVI, p. 472) are more nearly in agreement with the type of *berlepschi* from northern Ecuador than with a small series of *eminulus* from eastern Panamá. The skin from Monquido is very similar to the type of *berlepschi*. The Alto Bonito specimen is not so close, being even less tawny on the breast and brighter and clearer yellow on the belly, and it is thus even farther away from

[1] Since the above note was written, de Schauensee has published (Auk, 1937, LIV, p. 540) an identical conclusion, based on a reëxamination of the type of *pallidus*.

*eminulus*, taxonomically, than typical *berlepschi* although the locality is very close to eastern Panamá. If not representing an undescribed form, this bird must be referred to *berlepschi* as its nearest affine.

A single specimen collected by Dr. Von Patten in some part of Guatemala (the exact locality is not given on the label) is not clearly referable to *phaeocercus*, *tenuirostris*, or *quercinus*. It is most closely matched by a specimen from Zapotlan, Jalisco, Mexico, which, in turn, is intermediate between *phaeocercus* and *tenuirostris*, being paler than the one and darker than the other. Both are in first annual plumage. Jalisco birds have been referred to *tenuirostris*, although Ridgway comments on their intermediate nature, but there have been no indications of *tenuirostris* reaching anywhere near Guatemalan territory. Without some exact locality for this Guatemalan skin, its identity is best left for future determination. Other Guatemalan skins examined, including one from the far northwestern part of the country, belong to *quercinus*.

The type and the specimens of *olivaceus* listed below comprise all the material recorded from Perú.

SPECIMENS EXAMINED

*M. p. phaeocercus*.—MEXICO: Vera Cruz, Jalapa, 1 ♂, 1 ♀; City of Mexico, 1 ♀; "Mexique," 1 (?).

*M. p. tenuirostris*.—MEXICO: Tepic, Sierra de Alica, 2 ♂; Chihuahua, "Camp 48," 1 ♂; Jalisco, La Laja, 1 (?); La Pisagua, 1 (?); Zapotlan, 1 ♂.

*M. p.* subsp.?—GUATEMALA: 1 (?).

*M. p. quercinus*.—GUATEMALA: Chanquejelve, 1 ♂; Chichicastenango, 1 ♂; Tecpam, 1 ♂, 4 ♀, 1 (?); Guatemala City, 1 ♂, 1 ♀.

*M. p. nicaraguae*.—NICARAGUA: San Rafael del Norte, 3 ♂ (incl. type), 2 ♀; Ocotal, 3 ♂.

*M. p. aurantiiventris*.—COSTA RICA: Barranca, 1 (?); Coliblanco, 3 ♂; Dota, 1 ♂; Lagunaria, Santa Maria de Dota, 1 ♀; Estrella de Cartago, 1 ♂, 1 ♀; Azahar de Cartago, 1 ♂, 1 ♀, 1 (?); Carrillo, 1 ♂; La Hondura, 1 ♂, 2 ♀; Navarro, 1 ♂. PANAMÁ: Chiriqui, Boquete, 5 ♂, 1 ♀; "Chiriqui," 1 (?).

*M. p. vividus*.—PANAMÁ: Veraguas, Chitrá, 4 ♂ (incl. type), 1 ♀.

*M. p. eminulus*.—PANAMÁ: Mt. Tacarcuna, 4 ♂, 1 (?).

*M. p. berlepschi*.—COLOMBIA: Monquido, 1 (?); Alto Bonito, 1 ♂ (not typical). ECUADOR: Bulún, 1 ♀ (type).

*M. p. olivaceus*.—PERÚ: Santo Domingo, 1 ♂, 1 ♀; Inca Mine, 1 ♂, 1 ♀; Idma, 2 ♂; Chelpes, 1 ♂; Huachipa, 2 ♂[1], 1 (?)[1]; Uchco, 1 ♀[1].

**Cnemotriccus fuscatus fuscatior** (Chapman)

*Empidochanes fuscatus fuscatior* CHAPMAN, 1926 (Oct. 26), Amer. Mus. Novitates, No. 231, p. 6—junction of Río Curaray and Río Napo [Ecuador]; ♂; Amer. Mus. Nat. Hist.

[1] Specimens in Field Museum of Natural History, Chicago.

Specimens from the Ucayali River agree well with the average specimen from eastern Ecuador although the type is much the darkest example of any from either region. Similarly, specimens from the south bank of the Amazon, as far east as the Tocantins, are comparable to Ecuadorian birds without reaching the extreme of the type.

Some specimens of *fuscatior* come very close to *fumosus* but, in general, the Ecuadorian form is darker above, with a tendency toward a fuscous hue rather than an olive one, with a stronger pectoral band, duller and less conspicuous wing-bars, and less yellowish under parts. Young birds are paler above, with a rufous tinge, and have the wing-bars brighter and more conspicuous than those of the adults. Some adults are indistinguishable from certain examples of *fumosus*.

Two specimens from Faro, on the north bank of the Amazon, are difficult of assignment. One is unusually dark above and the other is paler, but both have rather prominent wing-bars. The dark one is very like some *fuscatior* but the other may be matched by certain *fumosus*. Geographically they should belong to *fumosus*, to which I assign them tentatively.

A single specimen from Mexiana Island is equally equivocal and may be matched by specimens from the Guianas and others from the south bank of the Amazon. It is paler above than the average of *fuscatior* but more deeply yellow on the belly, with wing-bars of only moderate prominence. For the present I leave it with *fumosus* to which Mexiana birds have been assigned by Hellmayr.

A still more puzzling example is a bird labeled as from the Igarapé Paituna, somewhat east of Faro. It agrees in all particulars, including the small bill and pale mandible, with *bimaculatus* and is beyond any extreme of *fumosus* or *fuscatior* which I have seen. It may possibly be wrongly labeled or it may be a casual migrant from Paraguay or Argentina, although I have no other evidence of migratory tendencies in this species.

The northern subspecies, *cabanisi*, is far from uniform, as has been noted by various authors. Specimens from Colombia, northern Venezuela, and even Monos Island are recognizably distinct from Tobago birds as represented in the series before me, being paler on the upper parts, yellower on the belly, and brighter rufescent on the somewhat broader wing-bars. There is a slight approximation of characters in a very few specimens, especially in those from northeastern Venezuela and Monos Island, even these are not as dull in color as the Tobago specimens. Trinidad examples are said to be of the yellow-bellied sort

also, including the types of *cabanisi*. The grayer Tobago birds have been separated by Ridgway as *vireoninus*. Unfortunately, yellow-bellied specimens are recorded also from Tobago, being said to match north-Venezuelan specimens. Most of the Tobago birds at hand have some yellowish tinge on the belly, but none of them matches the extreme of north-Venezuelan birds in this respect nor matches any north-Venezuelan specimen in regard to breadth or rufescence of wing-bars and outer margins of the secondaries.

I believe, therefore, that there is still something to be said for the separation of *vireoninus* from *cabanisi* although I should like to see more material before formally recognizing a Tobago form.

Upper Orinoco specimens are much like Tobago birds, though averaging even whiter on the belly and having the wing-bars narrower though equally dull in color. If "*vireoninus*" is recognized, it may be necessary to separate an Orinocan form also. It is even farther removed from typical *cabanisi* than is the Tobago series. Mt. Duida birds are quite distinct as described below.

A record from Iquitos undoubtedly belongs to *fuscatior*.

**Cnemotriccus fuscatus duidae,** new subspecies

TYPE from Playa del Río Base, Mt. Duida, Venezuela; altitude 550 feet. No. 274,504, American Museum of Natural History. Male, nearly adult, collected November 21, 1928, by the Olalla brothers.

DIAGNOSIS.—Most like *C. f. fuscatus* of southeastern Brazil but upper parts darker, less rufous brown, and under parts deeper yellow on the belly, warmer, less grayish, brown on the pectoral band, and yellow, rather than whitish, on the throat. General size smaller but bill averaging heavier. Differs from *C. fuscatus fumosus* of the Guianas by much browner back, usually deeper yellow under parts, broader and more rufescent margins of the tertials, broader and more deeply rufous wing-bars, and stronger bill with the mandible paler.

Compared with *C. f. cabanisi* of northern Venezuela, the upper parts are darker and browner, less grayish; the wing-bars are deeper rufous, the edges of the tertials more broadly marked with deeper rufous, more clearly defined; the superciliary stripe is less well marked; the under parts are much deeper yellow and the chest more brownish; the under wing-coverts are more deeply yellow; the bill is longer and has the mandible paler.

Compared with *C. fuscatus fuscatior* the upper parts are brighter brown, the under parts deeper yellow, the wing-markings more strongly rufous, and the mandible paler.

RANGE.—Southwestern Venezuela and northwestern Brazil; lower slopes of Mt. Duida, the Río Cassiquiare, and the upper Rio Negro.

DESCRIPTION OF TYPE.—Upper parts warm Buffy Brown × Olive-Brown, slightly brighter on the top of the head and approaching Prout's Brown on the rump and upper tail-coverts. Lores with upper part Pinkish Buff, continued

rather indistinctly over the eye and auriculars to form a poorly defined superciliary stripe; auriculars brown at tips, paler and more buffy basally; malar region brown; throat Pale Olive-Buff × Marguerite Yellow; a broad pectoral band Light Brownish Olive, broadest and darkest on sides; belly Primrose Yellow; flanks narrowly olive brownish; thighs warm brown; under tail-coverts Marguerite Yellow. Wings sooty; primaries without pale edges [except toward base of outermost, a marking not shown by the type which is molting the outer primaries]; secondaries with conspicuous margins of Cinnamon-Buff except basally where their absence leaves a conspicuous, squarish, black patch; tips of secondaries included in the pale margins; tertials with outer edges broadly Avellaneous, the bright color occupying at least the outer half of the outer web of the innermost feather. Inner margins of remiges Pinkish-Buff; under wing-coverts Marguerite Yellow except toward bend of wing where there is a patch of light Saccardo's Umber. Tail Fuscous with brownish olive edges and indistinct pale tips. Maxilla black; mandible whitish, darker near tip. Feet dusky brown. Wing, 67 mm.; tail, 60; exposed culmen, 11.25; culmen from base, 15; tarsus, 16.5.

REMARKS.—Females similar to the males in general color but smaller; wing, 62 as against 67–69; tail, 56 as against 58.5–61.5.

Although I have seven specimens of this form, all of which show the characters of the subspecies, none of them is in full, fresh plumage. The specimens not in molt are worn and in poor condition. Hence I have chosen as type a skin which, although retaining a few feathers of immaturity, like the upper primary-coverts, is in the most nearly fresh adult plumage.

At first glance, *duidae* might be thought to represent a migrant population of typical *fuscatus* from southern Brazil, but the more intense yellow of the under parts is distinguishable even in worn specimens and I have both forms from their respective ranges at the same times of the year. Subspecific separation thus is indicated.

Four of the specimens have the mandible very pale; three, including the type, have it slightly darkened but distinctly paler than the blackish maxilla. Whether this difference is one of season or age I am unable to say. The same condition is observable in typical *fuscatus* although most specimens of the latter have the whole bill dark.

SPECIMENS EXAMINED

*C. f. fuscatus.*—BRAZIL: Bahia, 1 ♂, 3 ♀, 1 (?); São Paulo, São Sebastião, 1 ♂, 1 ♀; Rio Feio, 1 (?); Rio Grande do Sul, Lagôa de Forno, 1 ♂; Paraná, Guayra, 1 (?).

*C. f. bimaculatus.*—BRAZIL: Bahia, Giguy, 4 ♂; Jaguaquara, 1 (?); Santa Rita, 2 ♂; Sincorá, 2 ♂, 1 (?); Tambury, 2 ♂; São Paulo, Fazenda Cayoá, 2 ♂, 1 ♀; Piauhy, Parnaguá, 1 ♂; Patos, 1 ♀; Ceará, Viçosa, 1 ♀, 1 (?); Goyaz, Araguaya, 3 ♂, 1 ♀; "Goyaz," 1 ♀; Maranhão, Flores, 1 ♀; near Miritiba, 1 ♂, 1 ♀; Pernambuco, Garanhuns, 1 ♂, 1 ♀; Matto Grosso, Campanario, 1 ♂; Descal-

vados, 1 ♂; Urucum, 3 ♂, 1 ♀; Chapada, 5 ♂, 8 ♀, 3 (?); Agua Blanca de Corumbá, 1 ♂; São Lorenzo River between its mouth and the mouth of the Cuyabá, 1 ♀; Rio Madeira, Calamá, 1 ♀; Humaythá, 1 ♀; Igarapé Paituna, Fazenda Ponto, 1 ♂. ARGENTINA: Ocampo, 1 ♂. PARAGUAY: Zanja Moroti, 2 ♂; Fort Wheeler, 1 ♂, Belon, 1 ♂; Colonia Independencia, 1 ♀.

*C. f. fuscatior.*—ECUADOR: mouth of Río Curaray, 5 ♂ (incl. type), 2 ♀. PERÚ: Sarayacu, 4 ♂, 3 ♀; Lagarto, 2 ♂. BRAZIL: Rio Madeira, Rosarinho, 3 ♂, 1 ♀; Santo Antonio de Guajará, 4 ♂, 3 ♀; Rio Amazonas, Villa Bella Imperatríz, Santa Clará, 4 ♂, 1 ♀; Rio Tapajoz, Tauarý, 1 ♀; Rio Xingú, Villarinho, de Monte, 1 ♂, 2 ♀, 1 (?); Rio Tocantins, Baião, 1 ♂.

*C. f. fumosus.*—FRENCH GUIANA: Approuague, 3 ♂ (incl. type), 3 ♀; Cayenne, 1 ♂, 1 ♀, 1 (?). DUTCH GUIANA: Ryweg, 1 ♂, 2 ♀; Paramaribo, 1 ♀. BRAZIL: Faro, 2 ♂; Mexiana, Nazareth, 1 ♂.

*C. f. cabanisi.*—MONOS ISLAND: 2 ♀. TOBAGO: Castare, 1 ♂, 4 ♀. Mondiland, 1 ♀; Waterloo, 1 ♀; Mariah, 1 ♀; Gecito, 1 ♀; Richmond, 1 ♀; "Tobago," 1 (?) (type of *canescens*). VENEZUELA: Cristóbal Colón, 1 ♀; Cuchivano, 1 ♂; La Florida, Cumanacoa, 1 ♀; Puerto La Cruz, 1 ♂; Tucacas, Falcón, 1 ♀; Las Trincheras, Carabobo, 1 ♀; "Venezuela," 1 (?); Río Apure, San Fernando, 1 (?); Río Orinoco, Altagracia, 4 ♂, 2 ♀; Caicara, 2 ♀; Las Barrancas, 1 ♀. COLOMBIA: "Bogotá," 7 (?); Boca de Chimi, lower Río Magdalena, 1 ♂; Santa Marta, Concha, 1 (?); Bonda, 2 ♂, 2 (?); Valparaiso, 1 (?).

*C. f. duidae.*—VENEZUELA: Mt. Duida, Playa del Río Base, 2 ♂ (incl. type); Savana Grande, 2 ♂; Río Cassiquiare, Buena Vista, 1 ♀; Solano, 1 ♀. BRAZIL: Rio Negro, Yavanari, 1 ♀.